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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ZEWDU, MELESS NMN	

ART UNIT	PAPER NUMBER
2683	

DATE MAILED: 10/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/077,985	ARAZI ET AL.	
	Examiner	Art Unit	
	Meless N. Zewdu	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,12-14,21-28,35 and 36* is/are rejected.

7)☒ Claim(s) *6-11,15-20,29-34 and 37-42* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 8/18/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is in response to the communication filed on 7/21/05.

2. Claims 27-42 have been added new.

3. Claims 1-42 are pending in this action.

4. This action is final.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farwell et al. (Farwell) (EP 0 594 354 A2) in view of Yamauchi et al. (Yamauchi) (JP 11308153 A) further in view of Kranser et al. (Krasner) (US 6,665,541).

As per claim 1: a method for detecting a mobile unit by a base station, wherein frequency-hopping is used to communicate between base station and mobile units reads on abstract; col. 2, lines 8-26), comprising:

at a base station that is connected to a mobile unit reads on '354 (see abstract; col. 2, lines 8-26; col. 3, lines 18-25, 31-40).

communicating with the mobile unit from at least one neighboring base station reads on '354 (see fig. 1; col. 4, lines 1-58, particularly lines 44-58). In fig.1, it shown that the mobile unit can communicate with neighboring base station. But, Farwell does not explicitly teach about periodically yielding a hop during which the mobile unit communicates with at least one neighboring base station, as claimed by applicant. However, in a related field of endeavor, Yamauchi teaches about a frequency hopping based on a prescribed frequency hopping sequence communicated by a base station and a mobile station wherein, if a speed of the mobile station is more than a prescribed value, at time of hand off, hopping is not used/yielded (see abstract and constitution). Since, handoff requires at least a first and second base stations, the teaching shows that the mobile station is communicating with the second base station at the time when hopping is not used/yielded by the first base station and the speed of the mobile station is detected to be beyond a threshold value. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teach of Farwell with that of Yamauchi for the advantage of reducing signal processing at time of handoff (see abstract, "problem to be solved"). But, the two references mentioned above do not explicitly teach about transferring to at least one neighboring base station timing information identifying a timing of said hop, as claimed by applicant. However, in a related field of endeavor, Krasner teaches about a cellular system wherein timing information is exchanged between several base stations wherein the use of the timing information, among other uses, is handing off of a mobile station from one base station to another (see col. 5, lines 55-65). When the above references are modified by

Krasner, as discussed here, the timing information will be associated with the frequency hopping system provided by Farwell (as modified) and the combined information will be used for handing over a mobile station from one base station to another. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to further modify the above references with the teaching of Kranser for the advantage of providing a cellular communications system a more efficient handoff of a mobile station from one base station to the next base station.

As per claim 22: Farwell discloses, in a system that includes a mobile unit and a plurality of base stations, and wherein a first one of the base stations communicates with the mobile unit ((see abstract; col. 2, lines 8-26), a method for another base station to detect the mobile unit (see fig. 1; col. 4, lines 1-58, particularly lines 44-58). Aso, Farwell discloses that a mobile station/unit can communicate simultaneously with at least more than one base station (see fig. 1; abstract; col. 4, lines 1-43). But, Farwell does not explicitly teach about, the first base station periodically yielding a time interval and during said time interval that has been yielded by the first base station, at least one neighboring base station communicating with the mobile unit, as claimed by applicant.

However, in a related field of endeavor, Yamauchi teaches about a frequency hopping based on a prescribed frequency hopping sequence communicated by a base station and a mobile station wherein, if a speed of the mobile station is more than a prescribed value, at time of hand off, hopping is not used/yielded (see abstract and constitution). Since, handoff requires at least a first and second base stations, the teaching shows that the mobile station is communicating with the second base station at

the time when hopping is not used/yielded by the first base station and the speed of the mobile station is detected to be beyond a threshold value. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teach of Farwell with that of Yamauchi for the advantage of reducing signal processing at time of handoff (see abstract, "problem to be solved"). But, the two references mentioned above do not explicitly teach about transferring to at least one neighboring base station timing information identifying a timing of said hop and based on said timing information, said second base station communicating with said mobile unit, as claimed by applicant. However, in a related field of endeavor, Krasner teaches about a cellular system wherein timing information is exchanged between several base stations wherein the use of the timing information, among other uses, is handing off of a mobile station from one base station to another (see col. 5, lines 55-65). When the above references are modified by Krasner, as discussed here, a second base station will be able to communicating with a mobile unit based on the timing information exchanged between the several base stations (including the second base station) which are to use the timing information for handoff of a mobile unit.Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to further modify the above references with the teaching of Kranser for the advantage of providing a cellular communications system a more efficient handoff of a mobile station from one base station to the next base station.

As per claim 23: a method wherein said communicating with the mobile unit from said at least one neighboring base station includes transmitting to the mobile unit by said at least one neighboring base station reads on '354 (see fig. 1; col. 7, lines 9-23; col. 11, line 51-col. 12, line 4).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farwell in view of Yamauch as applied to claim 1 above, and further in view of Dent (GB 2 337 669 A).

As per claim 2: claim 2 recites, at neighboring base stations that are not close to each other, using the same hop to communicate with the mobile unit and at neighboring base stations which are close to one another, using different hops to communicate with the mobile unit. Farwell does not explicitly teach about In other words the feature of claim 2 is directed to frequency hops channels reuse. But, Farwell does not explicitly teach about the use of same frequency hops for far apart stations and different frequency hops for neighboring stations, as claimed by applicant. However, in a related field of endeavor, Dent teaches about a frequency hopping communication system using a technique of orthogonal offsetting to divide channels into sub-groups wherein adjacent stations use different sub-groups while non-adjacent stations use same sub-groups of orthogonal offsets (see page 6, line 1-page 7, line 2; page 18, lines 8-13; page 20, lines 20-27). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching of Farwell with that of Dent for the advantage of reducing interference between cells using same frequencies at the same time (see page 1, lines 4-6).

Claims 27-28 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farwell in view of Roundtree (US 6,640,098 B1).

As per claim 27: a wireless communication system comprising:

a first base station able to communicate with a mobile unit reads on '354 (see abstract; fig. 1; col. 2, lines 49-57). In fig. 1, it is shown that a mobile unit can communicate with a first and second base stations.

a second base station waiting for the mobile unit to enter its coverage area reads on '354 (see col. 4, lines 1-4), said second base station able to receive timing information identifying a timing of a time interval yielded by said first base station reads on '354 (see col. 4, lines 17-34). In Farwell, both the neighboring base stations and the mobile unit exchange/know the synchronization signal, which is a timing information. But, Farwell does not explicitly teach about a base station connected with the mobile unit, sending a PING command to the mobile unit during a time interval, and to receive at least one ECHO reply from said mobile unit, as claimed by applicant. However, in a related field of endeavor, Roundtree teaches about a system for obtaining service related information for local interactive wireless device, wherein a short range PING command signal is sent to a nearby device which responds back to the command signal. Furthermore, a transmitter/receiver can send the PING command signal (see abstract; col. 9, line 59-col. 10, line 35; claims, particularly, claim 17). The response signal to the PING command signal can be considered (and is) as an ECHO signal. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to add the PING command and ECHO response system to

Farwell's teaching for the advantage of obtaining accurate service transaction (see col. 2, lines 43-50). It should be mentioned, as obvious,that since, in Farwell, the base stations and the mobile unit, they all know the synchronization signal, any information between them would have to be exchanged within that synchronization/timing interval.

As per claim 28: the wireless communication system comprising a switch connected to said first and second base stations, wherein said second base station is able to measure the quality of the ECHO response, and to report the quality measurements to said switch reads on '354 (see abstract; col. 4, lines 1-15).

As per claim 35: the feature of claim 35 is similar to the feature of claim 27. Hence, claim 27 is rejected on the same ground and motivation as claim 27.

As per claim 36: the feature of claim 36 is similar ot the feature of claim 28. Hence, claim 36 is rejected on the same ground and motivation as claim 28.

Claims 3-5, 13, 14 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farwell in view of Roundtree (US 6,640,098 B1) and further in view of Kranser et al. (Krasner) (US 6,665,541).

As per claim 3: in a wireless communication system comprising a base station connected with a mobile unit reads on '354 (see abstract; col.2, lines 8-26), a method of detecting a handset by at least one base station which is waiting for the mobile unit to enter its coverage area reads on '354 (see col. 4, lines 1-9), comprising:

from the at least one base station waiting for the mobile unit to enter its coverage area reads on '354 (see col. 4, lines 1-9).

at the base station waiting for the mobile unit to enter its coverage area reads on '354 (see col. 4, lines 1-58, particularly, lines 1-9). But, Farwell does not explicitly teach about a base station connected with the mobile unit, sending a PING command to the mobile unit and receiving an ECHO reply from the mobile unit, as claimed by applicant. However, in a related field of endeavor, Roundtree teaches about a system for obtaining service related information for local interactive wireless device, wherein a short range PING command signal is sent to a nearby device which responds back to the command signal. Furthermore, a transmitter/receiver can send the PING command signal (see abstract; col. 9, line 59-col. 10, line 35; claims, particularly, claim 17). The response signal to the PING command signal can be considered (and is) as an ECHO signal.

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to add the PING command and ECHO response system to Farwell's teaching for the advantage of obtaining accurate service transaction (see col. 2, lines 43-50). But, Farwell in view of Roundtree do not explicitly teach about transferring to the at least one base station waiting for the mobile unit enter its coverage area timing information identifying a time interval, as claimed by applicant. However, in a related field of endeavor, Krasner teaches about a cellular system wherein timing information is exchanged between several base stations wherein the use of the timing information, among other uses, is handing off of a mobile station from one base station to another (see col. 5, lines 55-65). Timing information obviously includes timing nterval. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to further modify the above references with the teaching of Kranser

for the advantage of providing a cellular communications system a more efficient handoff of a mobile station from one base station to the next base station.

As per claim 4: the feature of claim 4 is similar to the feature of claim 1. Hence, claim 4 is rejected on the same ground and motivation as claim 1.

As per claim 5: method further comprising:

at each base station receiving the ECHO response, measuring the quality of the ECHO response and reporting the quality measurements to a switching connected to the base stations reads on '354 (see col. 4, lines 1-58, particularly lines 1-9, lines 44-58). The Farwell's reference shows that a signal strength is measured and compared against a predetermined threshold (see abstract). As shown above, when the references are combined, the mobile station will be able to send ECHO signal in response to the PING command/message from a base station. Furthermore, since the PING and ECHO reply are communication signals, a base station would be able to measure the quality of the ECHO signal. In addition, a base station reporting to its switching controller about a signal condition related to a mobile unit is conventional and would have been obvious.

As per claim 14: the feature of claim 14 is similar to the feature of claim 5. Hence, claim 14 is rejected on the same ground and motivation as claim 5.

As per claim 24: a method wherein the at least one base station waiting for the mobile unit to enter its coverage area starts to monitor said ECHO reply when an initial connection of the mobile unit to any one of the base stations is created reads on '354 (see abstract; fig. 1; col. 2, lines 8-21). It is shown in the rejection of claim 13 that a

base station can monitor/detect a mobile station/unit. Also shown is the mobile unit being able to communicate with plural base station. Hence, when the references are combined, any of the base stations can PING a mobile unit and be able to receive an ECHO reply therefrom according to the teaching of Yamauchi.

As per claim 25: a method, wherein sending said at least one PING command comprises periodically sending a plurality of said PING commands to the mobile unit reads on '098 (see abstract; claim 9, line 59-col. 10, line 35; claims 1 and 17). According to the reference ('098) wireless devices and servers located in the same vicinity can exchange the short range PING and response/Echo signals for obtaining services. Furthermore, because the mobile unit periodically moves from one location to another, it would be obvious that PING commands would have to be sent to ascertain where the mobile unit is at a given instant of time.

As per claim 26: the feature of claim 26 is similar to the feature of claim 25. Hence, claim 26 is rejected on the same ground and motivation as claim 25.

Claims 12 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farwell in view of Fudge, as applied to claims 3 and 13 above, and further in view of Lu et al. (Lu) (US 6,212,395 B1).

As per claim 12: but, the above references do not explicitly teach about a wireless communication system that comprises a wireless private branch exchange (WPBX) handling calls from mobile units comprising handsets, as claimed by applicant. However, in a related field of endeavor, Lu teaches a wireless communication system comprising wireless/cellular private branch exchange (WPBX) (see abstract; figs 5A, 12;

col. 2, line 58-col. 3, line 46; col. 9, lines 36-67). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching of the above references with that of Lu for the advantage of providing mobility management for the first plurality of/(cordless) mobile stations (see col. 3, lines 13-22).

As per claim 21: the feature of claim 21 is similar to the feature of claim 12. Hence, claim 21 is rejected on the same ground and motivation as claim 12.

Allowable Subject Matter

Claims 6-11, 15-20, 29-34 and 37-42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meless N. Zewdu whose telephone number is (571) 272-7873. The examiner can normally be reached on 8:30 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (571) 272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

Meless Zewdu M.Z.

Examiner

06 October 2005.

WILLIAM TROST
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